

NEW

## PATENT ABSTRACTS OF JAPAN

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## (54) OPTICAL DISK MEDIUM

## (57)Abstract:

PURPOSE: To prevent the disturbance in focus servo by the vibration of the optical disk medium and the adverse influence on recording and reproducing of information.

CONSTITUTION: An information recording film 2 necessary for optically or magneto-optically recording and reproducing the information is formed on a disk-shaped substrate 1 having a central hole provided for positioning and mounting the disk medium to a spindle. A protective film 3 for cladding this information recording film is formed. Further, a damper material 4 having rubber elasticity is formed on the protective film 3, by which the disk medium structure is obtd.



## LEGAL STATUS

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the optical disk medium used for the optical disk unit which performs informational record and reproduction to the optical disk medium which rotates at high speed optically about an optical disk medium.

[0002]

[Description of the Prior Art] The former and this kind of optical disk medium is a polycarbonate (PC) in order to equip the spindle of an optical disk unit, to rotate at high speed, to condense the light which carried out outgoing radiation from the record reproduction light source of the aforementioned optical disk unit to the information recording surface of this optical disk medium with an objective lens and to perform informational record reproduction. The optical disk medium which made the protective coat which wraps information record film and this information record film entirely form on resins, such as an acrylic (PMMA), or a glass circular substrate is made into 1 composition unit. The veneer type optical disk medium which consisted of this one optical disk medium; The record reproduction light plane of incidence of the aforementioned optical disk medium is countered again. The record reproduction light plane of incidence is countered in the aforementioned optical disk medium of two more sheets, and there is a kind of lamination \*\*\*\*\* type optical disk medium etc. mutually. the substrate of the almost same configuration as the aforementioned optical disk medium -- lamination \*\*\*\*\* type optical disk medium; -- In order to make the spindle of an optical disk unit equip with these optical disk media as mentioned above, they had become the structure of having a hub, a pin center, large hole, etc. in a core.

[0003]

[Problem(s) to be Solved by the Invention] Although the optical disk medium which consists of composition which was mentioned above rotates at high speed in order for the pin center, large hole of a core to fit in the spindle shaft of an optical disk unit, to support it and to perform informational writing and read-out at high speed The aforementioned optical disk medium by having the deflection completely in the direction of an optical axis of a focus, i.e., direction, of not a flat but the record reproduction light which condenses to an information recording surface, and rotating at high speed Vibration of the frequency corresponding to the deflection configuration and the rotational frequency or resonance took place, it had a bad influence on the focus-servo system prepared since record reproduction light was condensed to the information recording surface of an optical disk medium, and there was a problem of causing trouble to informational record and reproduction.

[0004] It is in the purpose of this invention offering the optical disk medium which makes small influence on the focus-servo system by the vibration or resonance of frequency accompanying high-speed rotation of an optical disk medium, and attains stabilization of informational record reproduction.

[0005]

[Means for Solving the Problem] The 1st optical disk medium of this invention has damper material with the rubber elasticity formed on the protective coat which wraps entirely the information record film or this information record film formed on the substrate.

[0006] The 2nd optical disk medium of this invention a base other than the optical disk medium which has the information record film and the protective coat which were formed on the substrate, or another optical disk medium of the aforementioned structure The 3rd optical disk medium of this invention which is the one side type or both-sides type structure where the damper material which the record reproduction light plane of incidence is opposed mutually, and has rubber elasticity between them is made to pinch It is the one side type or both-sides type structure which uses the adhesives which have the rubber elasticity after hardening as adhesives on which another optical disk medium of a substrate different from the optical disk medium which has the information record film and the protective coat which were formed on the substrate, or the aforementioned structure opposes mutually the record reproduction light plane of incidence, and the meantime is pasted up.

[0007]

[Example] Next, the example of this invention is explained using a drawing.

[0008] The first optical disk medium of this invention is with the substrate 1 made of resins, such as glass which has a main hole as shown in a view 1, or PC, PMMA. it was made to form the hub 5 prepared in order to make this substrate 1 position and stick to the spindle of an optical disk unit, the metal plate 6 which has the pin center, large hole 7, and on the aforementioned substrate 1 -- optical -- or It consists of damper material 4 which has the rubber elasticity made to form on information record film 2

required in order to carry out record reproduction of the information in magneto-optics, the protective coat 3 made to form so that information record film 2 may be wrapped entirely in order to prevent the aforementioned information record film 2 damaged or corroding according to an external factor, and a protective coat 3. The damper material of ultraviolet-rays hardening resin is used for the damper material used for the first optical disk medium of this invention.

[0009] Although the spindle of an optical disk unit is equipped with the optical disk of this invention and it rotates centering on the pin center, large hole 7 at high speed, the aforementioned substrate 1 usually has a deflection completely in not a flat but the direction perpendicular to the field of information record film 2 of a focus, i.e., the direction. Therefore, when the optical disk medium constituted as mentioned above rotates at high speed, vibration of the deflection configuration and the frequency corresponding to the rotational frequency or resonance takes place. An optical disk unit is less than about 1 micrometer in precision on the aforementioned information record film 2 by the focus servo about the light which carried out outgoing radiation from the record reproduction light source, in order to carry out record reproduction of the information to the information record film 2 of the aforementioned optical disk medium. Since the damper material used by this invention can absorb this vibration and can press down the amplitude of vibration small although a focus-servo system is confused if there is vibration which was mentioned above, or resonance, although it is condensing, it is small or the influence on the focus-servo system by the vibration to the direction of a focus of an optical disk medium can be lost.

[0010] Next, the second optical disk medium of this invention is explained using a drawing. The example shown in a view 3 is by a substrate 1, information record film 2, the protective coat 3, the hub 5, and the metal plate 6 as mentioned above. By making the damper material 8 arranged to the protective coat 3 side of two constituted optical disk media pinch between the protective coats 3 of the aforementioned optical disk medium of two sheets with adhesives 9, and pasting it up, by constituting a double-sided record type optical disk medium, and using the damper material 8 also in this example, it is small or the influence on the focus-servo system by vibration of an optical disk medium can be lost.

[0011] As damper material 8 used for the second disk media, the vibroisolating material of a synthetic-rubber system was used for this invention.

[0012] Next, one example of the third disk media of this invention is explained using a drawing. It is after hardening by the adhesives 10 which have two optical disk media which consisted of the substrate 1 shown in the aforementioned example as this example was shown in a view 4, information record film 2, a protective coat 3, a hub 5, and a metal plate 6, and have rubber elasticity by the protective coat 3 side, respectively. By sticking, as a double-sided record type optical disk medium is constituted and this example was shown in the aforementioned explanation, it is small or the influence on the focus-servo system by vibration of an optical disk medium can be lost. Rubber denaturation epoxy resin adhesive was used for the adhesives 10 used for this example.

[0013]

[Effect of the Invention] As explained above, by using the damper material which has the rubber elasticity of this invention in an optical disk medium, and adhesives, influence on the focus-servo system by vibration of an optical disk medium is made small, and stable record reproduction to the optical disk medium by the optical disk unit can be performed.

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CLAIMS

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[Claim(s)]

[Claim 1] The optical disk medium characterized by having the damper material with rubber elasticity formed on the protective coat which wraps entirely the information record film or this information record film formed on the substrate in the optical disk medium which has optically informational writing and a function as a record carrier used for the optical disk unit which performs read-out.

[Claim 2] The optical disk medium characterized by to make the damper material which the optical disk medium which has the information record film and the protective coat which were formed on the substrate in the optical disk medium which has optically informational writing and a function as a record carrier used for the optical disk unit which performs read-out, and another optical disk medium of another substrate or the aforementioned structure oppose mutually the record reproduction light plane of incidence, and has rubber elasticity between them pinch.

[Claim 3] In the optical disk medium which has optically informational writing and a function as a record carrier used for the optical disk unit which performs read-out The optical disk medium which has the information record film and the protective coat which were formed on the substrate, The optical disk medium characterized by using the adhesives which have rubber elasticity after adhesion hardening as adhesives on which another optical disk medium of another substrate or the aforementioned structure opposes mutually the record reproduction light plane of incidence, and the meantime is pasted up.

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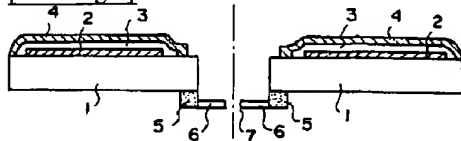
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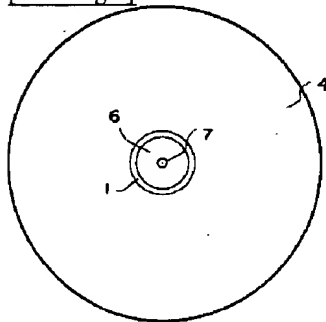
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DRAWINGS

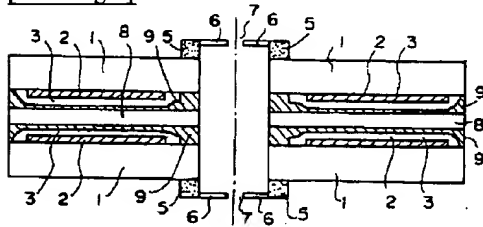
[Drawing 1]



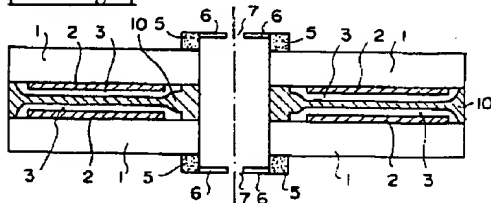
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]